

WHAT IS CLAIMED IS:

1. Apparatus for communicating by radio, comprising:
  - (a) a baseband processor for modulating data to be transmitted into an intermediate frequency signal;
  - (b) the baseband processor demodulating an intermediate frequency signal derived from a received high frequency signal;
  - (c) a front end section for receiving the intermediate frequency signal from said baseband processor and converting the received intermediate frequency signal into a high frequency signal;
  - (d) the front end section transmitting the high frequency signal;
  - (e) the front end section receiving a high frequency signal from a remote location and converting the received high frequency signal into an intermediate frequency signal;
  - (f) the front end section supplying the converted intermediate frequency signal to said baseband processor;
  - (g) said front end section being tunable to different frequency channels in each of a plurality of frequency bands for use as a radio frequency channel within a selected one of the frequency bands; and
  - (h) a frequency change-over selector for selecting a frequency channel in a frequency band to transmit and receive said data to avoid disturbance that may be present on an initially selected frequency channel.
2. The apparatus of claim 1, wherein said front end section includes a plurality of front end circuits, each front end circuit tunable within a respective one of the frequency bands.

3. The apparatus of claim 1, wherein said front end section includes a front end circuit common to the plurality of frequency bands.
4. The apparatus of claim 1, further comprising a plurality of antennae, each antenna transmitting and receiving high frequency signals within a respective one of the frequency bands.
5. The apparatus of claim 1, further comprising a common antenna for transmitting and receiving high frequency signals within all of the frequency bands.
6. The apparatus of claim 1, wherein the frequency bands include a 2.4 GHz band and a 5 GHz band.
7. Wireless communication equipment, comprising:
  - (a) a radio communication section comprising:
    - (i) a baseband processor for modulating data to be transmitted into an intermediate frequency signal;
    - (ii) the baseband processor demodulating an intermediate frequency signal derived from a received high frequency signal;
    - (iii) a front end section for receiving the intermediate frequency signal from said baseband processor and converting the received intermediate frequency signal into a high frequency signal;
    - (iv) the front end section transmitting the high frequency signal;
    - (v) the front end section receiving a high frequency signal from a remote location and converting the received high frequency signal into an intermediate frequency signal;
    - (vi) the front end section supplying the converted intermediate frequency signal to said baseband processor;

(vii) said front end section being tunable to different frequency channels in each of a plurality of frequency bands for use as a radio frequency a frequency channel within a selected one of the frequency bands; and

(b) a control section for selecting one of the frequency bands and a frequency channel within the selected frequency band to avoid interference that otherwise would impair communication.

8. Apparatus for communicating by radio, comprising:

(a) a baseband processor for modulating data to be transmitted into an intermediate frequency signal;

(b) the baseband processor demodulating an intermediate frequency signal derived from a received high frequency signal;

(c) a front end section for receiving the intermediate frequency signal from said baseband processor and converting the received intermediate frequency signal into a high frequency signal;

(d) the front end section transmitting the high frequency signal;

(e) the front end section receiving a high frequency signal from a remote location and converting the received high frequency signal into an intermediate frequency signal;

(f) the front end section supplying the converted intermediate frequency signal to said baseband processor;

(g) said front end section being tunable to different frequency channels in each of a plurality of frequency bands for use as a radio frequency channel within a selected one of the frequency bands;

(h) a frequency change-over selector for selecting a frequency channel in a frequency band to transmit and receive said data to avoid disturbance that may be present on an initially selected frequency channel; and

(i) the intermediate frequency signal having an intermediate frequency which is common to the plurality of frequency bands.

9. The apparatus of claim 8, wherein said front end section includes a plurality of front end circuits, each front end circuit tunable within a respective one of the frequency bands.

10. The apparatus of claim 8, wherein said front end section includes a front end circuit common to the plurality of frequency bands.

11. The apparatus of claim 8, further comprising a plurality of antennae, each antenna transmitting and receiving high frequency signals within a respective one of the frequency bands.

12. The apparatus of claim 8, further comprising a common antenna for transmitting and receiving high frequency signals within all of the frequency bands.

13. The apparatus of claim 8, wherein the frequency bands include a 2.4 GHz band and a 5 GHz band.

14. Wireless communication equipment, comprising:

(a) a radio communication section comprising:

(i) a baseband processor for modulating data to be transmitted into an intermediate frequency signal;

(ii) the baseband processor demodulating an intermediate frequency signal derived from a received high frequency signal;

(iii) a front end section for receiving the intermediate frequency signal from said baseband processor and converting the received intermediate frequency signal into a high frequency signal;

(iv) the front end section transmitting the high frequency signal;

(v) the front end section receiving a high frequency signal from a remote location and converting the received high frequency signal into an intermediate frequency signal;

(vi) the front end section supplying the converted intermediate frequency signal to said baseband processor;

(vii) said front end section being tunable to different frequency channels in each of a plurality of frequency bands for use as a radio frequency a frequency channel within a selected one of the frequency bands;

(viii) the intermediate frequency signal having a frequency which is common to the plurality of frequency bands; and

(b) a control section for selecting one of the frequency bands and a frequency channel within the selected frequency band to avoid interference that otherwise would impair communication.

15. Apparatus for communicating by radio, comprising:

(a) a baseband processor operable in accordance with different modulation/demodulation formats for modulating data to be transmitted into an intermediate frequency signal and for demodulating an intermediate frequency signal derived from a received high frequency signal;

- (b) a front end section for receiving the intermediate frequency signal from said baseband processor and converting the received intermediate frequency signal into a high frequency signal;
- (c) the front end section transmitting the high frequency signal;
- (d) the front end section receiving a high frequency signal from a remote location and converting the received high frequency signal into an intermediate frequency signal;
- (e) the front end section supplying the converted intermediate frequency signal to said processor;
- (f) said front end section being tunable to different frequency channels in each of a plurality of frequency bands, for use as a radio frequency a frequency channel within a selected one of the frequency bands; and
- (g) a format selector for selecting one of said different modulation/demodulation formats to provide improved signal transmission and reception.

16. The apparatus of claim 15, wherein the frequency bands include a 2.4 GHz band and a 5 GHz band, and the modulation/demodulation formats include complementary code keying (CCK) and orthogonal frequency division multiplexing (OFDM).

17. The apparatus of claim 15, wherein the intermediate frequency signal has an intermediate frequency which is common to the plurality of frequency bands.

18. Wireless communication equipment, comprising:

- (a) a radio communication section comprising:
  - (i) a baseband processor operable in accordance with different modulation/demodulation formats for modulating data to be transmitted into an

intermediate frequency signal and for demodulating an intermediate frequency signal derived from a received high frequency signal;

(ii) a front end section for receiving the intermediate frequency signal from said baseband processor and converting the received intermediate frequency signal into a high frequency signal;

(iii) the front end section transmitting the high frequency signal;

(iv) the front end section receiving a high frequency signal from a remote location and converting the received high frequency signal into an intermediate frequency signal;

(v) the front end section supplying the converted intermediate frequency signal to said baseband processor;

(vi) said front end section being tunable to different frequency channels in each of a plurality of frequency bands for use as a radio frequency a frequency channel within a selected one of the frequency bands;

(b) a format selector for selecting one of said different modulation/demodulation formats to provide improved signal transmission and reception; and

(c) a frequency selector for selecting a frequency channel in a frequency band to transmit and receive said data, said frequency selector being operable to change frequency bands and frequency channels to avoid disturbance that may be present on an initially selected frequency channel.

19. The equipment of claim 18, wherein the frequency bands include a 2.4 GHz band and a 5 GHz band and the modulation/demodulation formats include complementary code keying (CCK) and orthogonal frequency division multiplexing (OFDM), said format selector

selecting CCK when said frequency selector selects the 2.4 GHz band, and said format selector  
selecting OFDM when said frequency selector selects the 5 GHz band.